REMARKS

Claim 7-9 are pending in this application. By the Office Action, claims 1-6 are withdrawn from consideration; the title and Abstract are objected to; claims 7-9 are rejected under 35 U.S.C. §112; and claims 7-9 are rejected under 35 U.S.C. §103. By this Amendment, the title and Abstract are amended; claims 1-6 are canceled; and claims 7 and 9 are amended. Support for amended claims 7 and 9 can be found in the specification at, for example, paragraphs [0023], [0030], and [0031], and the claims as filed. No new matter is added.

I. Objection to the Specification

The Title is objected to as not being descriptive of the elected claimed invention. By this Amendment, the title is amended to be more descriptive of the elected claimed invention.

The Abstract is objected to as being in improper form. By this Amendment, a substitute Abstract is provided.

Accordingly, the objections are overcome and should be withdrawn. Reconsideration and withdrawal of the objections are respectfully requested.

II. Rejection Under §112

Claims 7-9 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Applicants respectfully traverse this rejection.

Claim 7 is rejected for being dependent upon withdrawn claim 1. Claim 7 is amended herein to be in independent form. Accordingly, this rejection is overcome.

Claim 7 is variously rejected for lacking antecedent basis for various terms. Claim 7 is amended herein to address the points of the rejection. Accordingly, this rejection is overcome.

Claim 7 is rejected alleging that the word "soft" is a relative term. Without agreeing with the rejection, claim 7 is amended herein to delete the term. Accordingly, this rejection is overcome.

Claim 7 is rejected alleging that "size of 0.1-2.0 mm" is vague and indefinite. Without agreeing with the rejection, claim 7 is amended herein to recite that the subject spherical-shaped core body is made of a rubber and has a "particle size" of 0.1-2.0 mm. Applicants respectfully submit that such a description is supported, at least inherently, by the specification as filed, and would be readily understood by one of ordinary skill in the art. Accordingly, this rejection is overcome.

Claim 7 is also rejected alleging that "a size of #3000-#10000" is also vague and indefinite. Applicants respectfully disagree. Applicants respectfully submit that abrasive grain sizes are regularly referred to in the art as having a size referenced using the "#" notation. For example, attached hereto is an English translation of JIS R 6001 (entitled "Bonded Abrasive Grain Sizes"), which uses the "#" size designation. See, for example, Tables 3 and 8. Although the text of JIS R 6001 does not explicitly refer to values related to grain sizes smaller than #8000, it is possible to estimate and obtain values related to such smaller grain sizes. See the attached graph, which is a representation of the relationship between grain size and particle diameter of the largest grain (dv-0 value). The graph is prepared by plotting values indicated in Table 8 of JIS R 6001 with logarithmic scale. As shown in the graph, the relationship is substantially a straight line, at least where the grain size is smaller than #3000. Accordingly, the claimed size of #3000-#10000 would be readily understood or derivable by one of ordinary skill in the art, and is not indefinite. Accordingly, this rejection is overcome.

Claim 9 is rejected alleging that the word "macro" is indefinite. Without agreeing with the rejection, claim 9 is amended herein to delete the term. Accordingly, this rejection is overcome.

Claim 9 is also rejected alleging part of the claim is redundant. Without agreeing with the rejection, claim 9 is amended herein to delete the alleged redundancy. Accordingly, this rejection is overcome.

III. Rejection Under §103

Claims 7-9 are rejected under 35 U.S.C. §103(a), as having been obvious over JP 3232778. Applicants respectfully traverse this rejection.

Claim 7, as amended, is directed to a process of manufacturing a coated body comprising a substrate and a hard coating disposed on said substrate, wherein said hard coating has (a) a surface smoothed to have a roughness with maximum height Rz of not larger than 1.2 μm, and (b) recesses each of which has a size of 0.5-6.0 μm and is formed in said surface, said process comprising: a surface smoothing step of smoothing a surface of said hard coating by using abrasive particles such that the smoothed surface has the roughness with the maximum height Rz of not larger than 1.2 μm and such that said recesses each having the size of 0.5-6.0 μm are formed in said surface of said hard coating, wherein each of said abrasive particles used in said surface smoothing step is provided by a spherical-shaped core body made of a rubber and having a particle size of 0.1-2.0 mm, and hard abrasive grains each having a size of #3000-#10000 and adhering to an outer surface of said spherical-shaped core body. Such a process is nowhere taught or suggested by JP '778.

The Office Action argues that because JP '778 teaches that particle size is important, it would have been obvious to optimize the particle size to achieve desired results. Although JP '778 may teach the importance of particle size, the reference does not teach or suggest all of the claim limitations, and thus cannot have rendered obvious the claimed invention. For

example, JP '778 at least fails to teach or suggest that the abrasive particles used in the surface smoothing step are provided by a spherical-shaped core body made of a rubber and having a particle size of 0.1-2.0 mm, as recited in claim 7.

JP '778 discloses a shot blasting operation that is carried out after formation of a hard coating on a tool substrate. In the process of JP '778, each of the abrasive particles used in the shot blasting is provided by a metallic, glass, or ceramic body. See JP '778 at paragraph [0013]. Nowhere does JP '778 teach or suggest that the abrasive particles could or should instead be provided by a spherical-shaped core body made of a rubber, as claimed. JP '778 does not teach or suggest that the metallic, glass, or ceramic body used to provide the abrasive grains could or should be substituted by a spherical-shaped core body made of a rubber, or that such a substitution would still provide adequate results.

Furthermore, the purpose of the shot blasting of JP '778 is different from the purpose of the claimed invention, and thus the process steps are different. In JP '778, the shot blasting is performed to release residual or internal stress from the formed hard coating. See JP '778 at paragraph [0013]. In contrast, the claimed invention provides the abrasive particles for smoothing the surface of the coating. JP '778 does not teach or suggest that the stress release step could or should instead be used to smooth the surface of the coating.

Still further, Applicants respectfully submit that even if the process of JP '778 was used in the context of the claimed invention, the result would not be the smooth surface as recited in claim 7. That is, Applicants submit that even if the shot blasting process using the hard particles taught by JP '778 was used to provide smooth coating surface, the resultant coating surface would not have a high degree of smoothness. The resultant coating would not have a roughness with maximum height Rz of not larger than 1.2 μm, as claimed.

Accordingly, because JP '778 fails to teach or suggest all of the claim limitations, the reference would not have rendered obvious claim 7 and dependent claims 8-9. Reconsideration and withdrawal of the rejection are respectfully requested.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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JAO:JSA

Attachments:
Substitute Abstract
JIS R 6001
Graph of Grain Size Based on JIS R 6001

Date: November 9, 2005

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